

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A process for operating on a dataset, comprising:  
defining a plurality of slicing planes through the dataset, said slicing planes being parallel to a viewing plane;  
interpolating density values in normalized device space for the figures generated by the intersection of the dataset with the slicing planes; and  
storing the density values as density textures for later use.
2. (currently amended) The process of claim 1 wherein said ~~step of~~ interpolating includes ~~the step of~~ rasterizing the figures generated by the intersection of the dataset with the slicing planes.
3. (currently amended) The process of claim 1 wherein said ~~step of~~ interpolating includes ~~the step of~~ interpolating a density value by analyzing the density values assigned to a predetermined number of nearby points.
4. (currently amended) The process of claim 1 additionally comprising ~~the step of~~ transforming the dataset to a new viewing plane.
5. (original) A process for operating on a volumetric dataset, comprising:  
selecting a viewing plane;  
slicing the dataset into a plurality of two dimensional slices, each slice resulting in a geometric primitive parallel to said viewing plane;  
converting each primitive to a set of fragments each having its own three dimensional texture coordinate;  
determining the density value of the three dimensional texture coordinate through interpolation from the nearest neighbors, and  
storing the density values for later use.
6. (currently amended) The process of claim 5 wherein ~~said step of~~ converting includes ~~the step of~~ trilinear interpolation.

7. (currently amended) The process of claim 5 additionally comprising ~~the step of~~ transforming the dataset to correspond to the viewing plane.

8. (original) A method of preprocessing a 3 D dataset, comprising:  
dividing the 3D dataset into a plurality of 2D primitives;  
calculating density textures for each of said plurality of 2D primitives; and  
storing said density textures for later use.

9. (currently amended) The method of claim 8 wherein said ~~step of~~ calculating the density textures includes ~~the step of~~ rasterizing said plurality of 2D primitives.

10. (currently amended) The method of claim 8 wherein said ~~step of~~ calculating includes ~~the step of~~ interpolating a value by analyzing the values assigned to a predetermined number of nearby points.

11. (currently amended) The method of claim 8 additionally comprising ~~the step of~~ transforming the dataset to a new viewing plane.

12. (currently amended) A process for operating on a 3D volumetric dataset, comprising:  
defining a plurality of slicing planes through the dataset, said slicing planes being parallel to a viewing plane, the intersection of each of said slicing planes with said dataset producing a primitive;

rasterizing each of said plurality of primitives; and  
storing the values produced by the rasterizing ~~step~~ as density textures for later use.

13. (currently amended) The process of claim 12 wherein ~~the values produced by the rasterizing step include~~ said density textures ~~which~~ are stored without transformation.

14. (currently amended) The process of claim 12 additionally comprising ~~the step of~~ transforming the dataset to a new viewing plane.

15. (cancelled)

16. (currently amended) A method of rendering a volumetric dataset, comprising:  
retrieving information from a lookup table using a density- texture as a pointer to the information in the table indicating a contribution to an image;  
compositing the retrieved information; and  
displaying the composited information.

17. (original) The method of claim 16 wherein the information includes values for red, green, and blue and an opacity value.

18. (cancelled)

19. (currently amended) A method of rendering a volumetric dataset, comprising:  
using density texture values as pointers for retrieving information from a lookup table;  
compositing the retrieved information; and  
displaying the composited information.

20. (currently amended) The method of claim 19 additionally comprising ~~the step of~~  
transforming the density texture values into normalized-device space prior to using the density texture values as pointers.

21. (original) The method of claim 19 wherein the information includes values for red, green, and blue and an opacity value.

22. (currently amended) A method of rendering a volumetric dataset, comprising:  
using a density- texture as a pointer to information in a lookup table; and  
compositing the information from ~~[[a]]~~ the lookup table.

23. (original) The method of claim 22 wherein the information includes values for red, green, and blue and an opacity value.

24. (cancelled)

25. (new) In a method for rendering a volumetric dataset, the improvement comprising  
using, during said rendering, density textures generated and stored prior to said rendering.

26. (new) A process for operating on a volumetric dataset, comprising:  
generating and storing density textures for said volumetric dataset prior to rendering said volumetric dataset.